

celao. The most improved description of baths we possess are constructed from strong sheets of zinc. The most improved description of urinals are formed of Welsh slate and plate-glass.

Within the memory of old plumbers the essential qualifications of a good workman were such as may well excite the astonishment of the present generation. He was expected to cast lead four pounds to the superficial foot, with unerring accuracy and despatch;—cisterns of solid lead embellished with mouldings, ornaments of animals, and the maker's name. His pipes must be cast without a pore, and burned without a flaw. The most severe muscular exertion was continually exacted. But now how different the case! Those qualifications at one time indispensable are no longer in request. The skilled labour that secured at one time for its forerunner the highest wages in the trade is now a drug in the market. A good workman now-a-days is scarcely a plumber. He is half a coopersmith, half a tinsmith, something of a gasfitter. He has lost all pretension to the manufacture of lead: he is a mere fitter-up of manufactured goods. He is not expected to cast pipes, nor even to draw pipes; he will do well if he can fabricate a zinc roan. He is not supposed to possess the art of casting sheets; he will do better if he can get up a zinc bath or a platform of galvanised iron.

Such, then, is a brief account of the transition state of the plumber trade. To us it is exceedingly interesting and full of hope. But the few old plumbers we have met with entertain a different opinion. Once on a time, they considered themselves tradesmen: now they consider themselves no longer entitled to the name. In the days of old, when lead was cast, 'baps and whisky' attended the operation: in the present day when sluc is worked, there is only 'spirit of salt.' They look back with regret; they look forward with fear and trembling. Some of them, we have no doubt, hope to be removed before the evil day comes when plumbers shall no longer wear striped aprons; when the casting frame shall have become a matter of history; when gutta percha or vulcanised India-rubber shall have superseded the use of such time-honoured materials as 'putty, hemp, and cement.' We have no sympathy with these ideas. Sanitary reform is yet in its infancy, and so is its connection with plumber work. We shall be greatly deceived if the plumber's services in this important movement do not eventually raise his business to a position more useful to society than it ever could occupy in the notions of antiquity, or during the reign of Gothic architecture."

As to the local statistics of the trade, and the general condition of the workmen in Edinburgh, the writer says that—

"Wages have stood within the recollection of the oldest men at 11. per week. They rose like that of every other trade during the building mania to 26s. and they fell like that of every other trade when the building mania exploded. The only strike they ever had was in 1847, and it was partially, though but temporarily, successful. They possessed at one time a friendly society, but some years ago it was broken up and the funds divided. This is the first trade we have come to where the workmen have no broken time—where they actually receive 52l. sterling per annum. It is also the first trade we have come to where the workmen do not supply their tools. Moreover, it is the only trade connected with building where the men receive a regular sum of money, in addition to their wages, in the shape of country allowance. In Edinburgh this is six shillings per week, in Glasgow it is nine shillings per week. So far as we can ascertain, there are, including apprentices, about 250 plumbers in Edinburgh and Leith. What is very remarkable, there are precisely the same number of master plumbers in Edinburgh at the present moment as there were journeyman plumbers thirty years ago. We are disposed to regard this as a very gratifying indication of the progress of sanitary principles.

With regard to the effect of the trade on the health of the workmen, we may observe that it was at one time exceedingly injurious. The process of casting exposed them to the fumes of volatilised oxide of lead. Although not so dangerous a poison as the carbonate of lead, the oxide is yet sufficiently deleterious in its effect on the system. Indeed, lead, under every form of combination, is poisonous. But the plumber, as we have seen, is no longer subjected to these influences.

With regard to the progress of temperance in the trade, we must do the plumbers justice to say that they are now a pretty sober and steady class of men, although even ten years ago they were very much the reverse. But with regard to the progress of education among them, we are afraid we cannot speak in so favourable terms. It is the opinion of most of the old journeymen, and nearly all the

masters we have conversed with, that, compared with the plumbers of thirty years ago, there is, in point of intelligence, a decided retrogression. They may be better workmen, or at least neater workmen, but they do less work: they will fit up a pump with much greater taste, but they do not understand its principles so well: they will make a prettier joint on a pipe, but they will not be able to tell the pressure it can sustain.

Such is the opinion of a master plumber, for whose opinions generally we entertain the most profound respect, but who, we think in this case, is unnecessarily severe in his strictures. The names of three plumbers stand in the prize list of the School of Arts last session. And we are also glad to state that the plumbers are in progress of forming a library in imitation of the slaters. Nevertheless, there are many of the ideas in which we heartily concur. We can have no respect, for example, towards a slovenly workman who is profound in politics.

It is apparent that there should not exist a more intelligent class of workmen than plumbers. Their business requires it: their means can afford it: the educational institutions of Edinburgh are in every respect within their reach. They should understand the laws which regulate the motion of fluids: they should understand at least the simple principles of mechanics. They should be able to calculate the pressure of the atmosphere, to know the effect of poisonous gases on the system, and especially to understand the properties of the different materials with which they come in contact. What an impetus the plumbers might give to the sanitary movement! What an inexhaustible source of mental cultivation lies here within their grasp!"

FITNESS TO PURPOSE IN BUILDINGS.

CONSIDERATIONS of much weight with the artist result from the fitness of a building, edifice, or construction of any kind, to the purposes and uses immediately required of it. It is this now well-recognised and generally admitted principle, *adaptation to use*, which forms the germ of the beautiful and of the elegant in every style of architecture; and, in connection with the houses and humble dwelling-places of the people at large, it manifests itself, with an inferior degree of development, in the appropriation of every essential part, or accessory appendage, to a special and assigned use and purpose. It shows itself also in a certain amount of regularity and symmetry, which, even in the most rude and rustic dwelling-places, is never entirely wanting. As the wants of men are similar, in civilised nations at least, it is the widely spread influence of the principle, fitness to purpose, which causes a certain degree of resemblance between the habitations and dwelling-places of all countries. But after recognising that there is a certain rudimentary form or plan in the construction of a dwelling-place, which is common to all countries and to all nations, it becomes interesting to observe how this original type, resulting from a certain conformity of wants and habits, becomes successively changed or modified by those circumstances which relate immediately to the climate of the country, and to the customs of the inhabitants by whom these buildings have been erected. And it is by carrying out fully, in drawings and pictures, this adaptation of the form and style of houses to the conditions of the country to which they belong, that a certain characteristic nationality becomes impressed on our subject, and that we establish that consistency between its different members which is so essential for the maintenance of a pleasing and harmonious unity throughout the whole scene.

It is with reference to these considerations that we observe in what essential points the buildings of different countries chiefly differ.

In Italy, for instance, the houses are characterised by projecting roofs, open colonnades and galleries, external staircases, and such other particulars as indicate distinctly the double object of gaining shelter from the scorching sun, and of procuring the enjoyment of a temperate and balmy air, combined with the loveliest scenery. To these general features is added an elegant lightness of the fabric, and the prevalence of slender square towers with light red roofs, somewhat pyramidal-shaped, rising above the mass of the buildings, and mingling, in the extensive view, with the still loftier campanili or bellfries of the numberless

churches. When perched upon the crests of the hills, or on the plateaus of the mountain, they seem to mark some favourite spot selected for a hamlet or a villa, and whilst every minute particular contributes to the characteristic expression of the subject, the more conspicuous features, such as the long white walls of the farm-houses, embowered in mulberry-trees and vineyards, and the slender towers of the villas with their wide range of prospect, mark more impressively the Italian landscape, imparting to it, at the same time, consummate finish, beauty, and elegance.

In Switzerland, we may remark how a different climate produces combinations in some respects similar, but very unlike in others. The roofs of the houses and chalets project, it is true, even more than in Italy; but it is not with a view of protection from the sun, it is rather as a defence from the heavy and intermittent rains. The galleries and covered ways likewise abound, but instead of remaining open to the genial breeze, they are hermetically closed in with glass and panelling. The sheds and outhouses, though less spacious and airy, are numerous and well-replenished; but instead of the rich harvests which have grown brown and yellow in the meridian sun, they show, heaped in desperate confusion, the timbers, tools, and implements which mark a land of forests, and a people of hardy mountaineers.

A certain resemblance of the dwellings of the Norwegian peasantry to the cottages of the Alps, results from the general use of wood in their construction; likewise from the manner in which their projecting sheds afford shelter from the rain. But in Scandinavia it is the traveller, the wayfaring-man, who chiefly receives the benefit of a shelter which is gratuitously provided for him. A little porch or vestibule lined with benches leads to the entrance of the house: here the weather-beaten itinerant finds, without asking for it, rest and shelter. The dwellings of the Norwegian peasantry, like those of the Alps, have flattened roofs; but they are weighed down by clouds of turf instead of stones. Their windows, instead of being numerous and airy, are scarce and small: added to this, their construction is low, and extended along the soil, as though, by clinging to its surface, they found more effectual protection from the violence of the northern tornadoes big with drifting snows. Many lesser particulars of design and colour complete the portrait, and give to the dwellings both of Sweden and Norway a peculiarly local character, the interest of which is appreciated by the inquiring traveller, as well as by the artist who makes it his object to delineate customs, manners, and nationalities.

In the villages of Germany, the spaciousness of the houses, their several stories, lofty gables, and numerous windows looking into broad streets and extensive squares, cannot fail to strike those who are accustomed to the very confined and narrow dwellings of our towns and villages. Whatever is, or has been, the political condition of these foreign states, the freedom which results from ease and abundance is strikingly apparent. There is seemingly no desire manifested by the inhabitants to sacrifice internal comforts, or external appearances, for the purpose of evading taxes, tithes, or rates. Everything bespeaks an unfeeling plenty, a degree of wealth in land and property, which is shared more or less by all. The size and abundance of the fountains, sometimes grotesquely ornamental, add to this character of public advantage and convenience. In some of the towns of second order, formerly the capitals of dukedoms or the seats of margraves, the decorations of the houses, and their style grand though expirious, convey an impression of almost princely magnificence, announcing the opulence or the rank of their former occupants, though now contrasting with the motley and obtrusive signs of a lingering trade. In some instances the scene presents a contrast of bygone prosperity and splendour with the wear and decay of time, or perhaps the still more affecting signs of present depopulation and desertedness. But at other times we find the age and massive solidity of the houses which line the streets picturesquely associated with the slender temporary erections